

The Citrus Industry

The Florida Citrus Mutual is now conducting an aggressive membership drive. Read an outline of its aims and purposes in this issue -- then sign up with your county organizational committee, and thus assure better marketing conditions and more stable prices for your product.

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You can talk all you want to about grove management, packing and canning house operations, auctions, shippers, transportation — and all the rest of the factors that go into getting your citrus crop to market. But the payoff comes when this lady makes up her mind. She's the sole judge and jury.

And she'll pick the best quality she can afford every time. The money she spends is what you live on. Make no mistake about that. Aside from the quality of the actual trees in your grove, the best way to get quality is through a balanced fertilizing program, doing the right things in the right amount at the right time.

When you base your grove feeding plan upon Ideal Fertilizers you can pretty much depend on the

best possible results. Why? Ideal Fertilizers are made in Florida to suit Florida soils and Florida conditions. They have well deserved the popularity that has made them the favorites in Florida for over 50 years. Ask for Ideal Fertilizers every time.

To get healthier trees and better quality fruit, insist on Ideal Fertilizers. — and for a complete program, include FASCO insecticidal, fungicidal and nutritional spray materials in your planning!



IDEAL FERTILIZERS

Feed the Soil to Fatten Your Purse

WILSON & TOOMER FERTILIZER COMPANY, JACKSONVILLE, FLORIDA

May, 1948

THE CITRUS INDUSTRY

ELECT

Dan McCarty

As Governor
Of Florida
On May 25th

And Be Assured
of

Honest
Capable
Courageous
Leadership



McCARTY IS OBLIGATED TO NO ONE

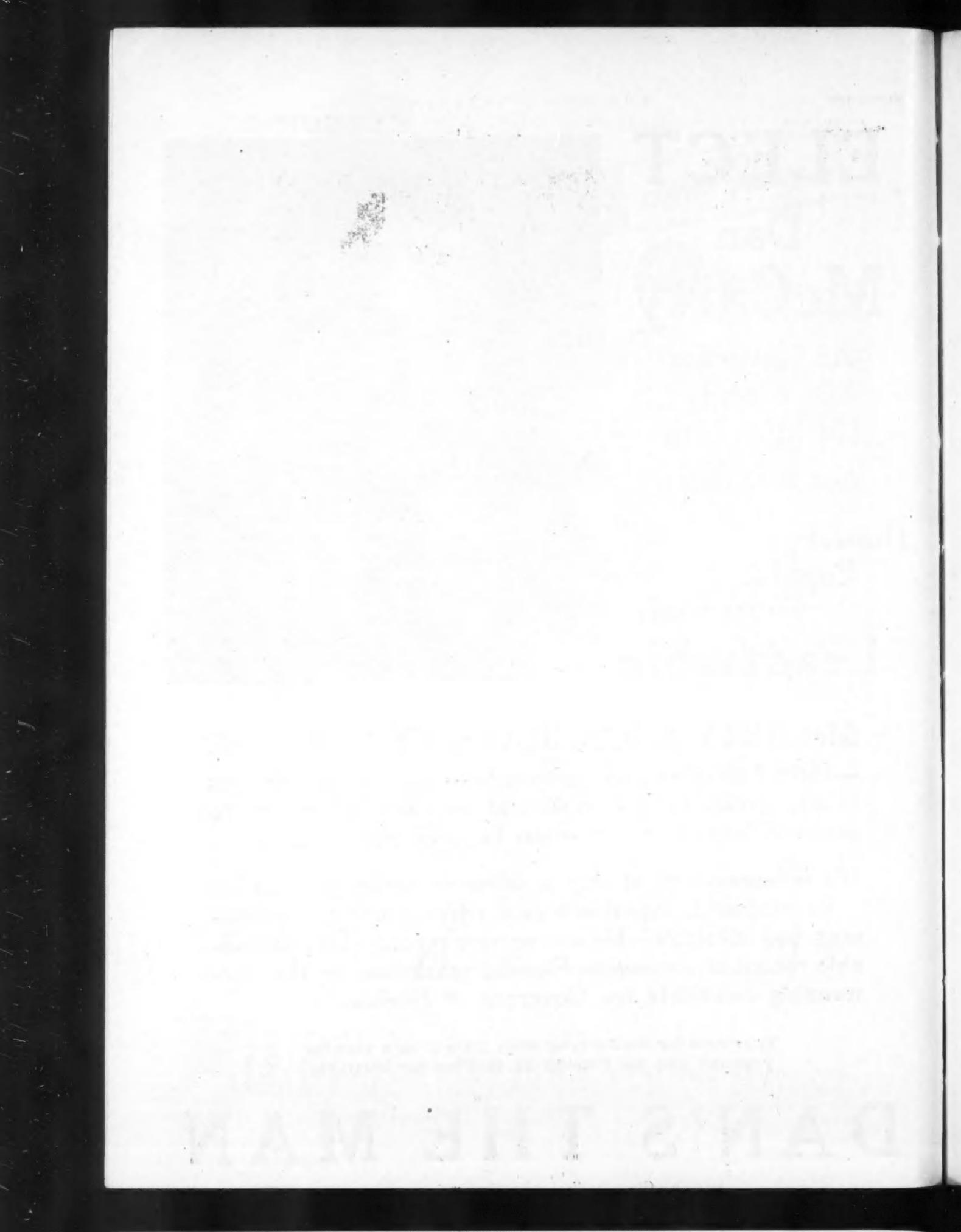
---He is free of any commitments --- owes no obligations to any group or individual and will not be subject to pressure from any one when he is elected governor.

His independence of any possible embarrassing alliances ---his successful experience as a citrus grower, businessman and legislator---his war service record---his unassailable record of service to Florida, mark him as the outstanding candidate for Governor of Florida.

Your vote for McCarty on May 25 will be a vote for yourself and for Florida as well as for McCarty

DAN'S THE MAN

(Paid Political Advertisement)



GROWERS! SHIPPERS! PROCESSORS!**For Your OWN PROFIT and PROTECTION
JOIN Florida Citrus Mutual**

The problems of Florida's Citrus Industry will never be solved by individual or small-group action.

Only by broad, cooperative, mutual effort can the citrus industry hope to get back on a profitable basis — and stay there!

Only by controlled marketing and distribution through one source having 75 per cent or more of the total tonnage at its command, can this be accomplished.

Here are the facts:

1. The 1945-46 crop of 86,000,000 boxes brought in excess of 239 million dollars — with a return to the grower of \$1.46 per box.
2. In 1946-47 the crop was 83,000,000 boxes. It was sold for 147 million dollars — a loss of 90 million dollars in a single year. The grower realized a pitiful 44 cents per box.
3. The 1947-48 crop is not yet in, but it is estimated at 91,000,000 boxes.
4. Next year's crop, depending upon the weather, may run anywhere from 105 to 125 million boxes.
5. Authorities predict that sometime between 1950 and 1955, Florida will produce a crop of 150,000,000 boxes.

With a continuation of present marketing practices, you know the answer as well as we do. And you can write your own experiences better than we can.

The ills of the citrus industry are internal ills. They cannot be cured from the outside. The remedy is within the industry itself — in mutual understanding, in self preservation through cooperative thinking and action.

The time has come when petty differences of opinion and personalities must be forgotten; when cut-throat or unthinking competition and haphazard marketing must stop. The time has come when EVERYBODY in the citrus industry must be willing to meet on a common ground for common protection through price stabilization, marketing control, and every other means that will help to produce a profit.

You cannot afford to wait for so-called "better times." You cannot wait to see what the "other fellow" is going to do. It's already much later than you think. Your property and your future financial welfare are at stake. The time has come for you to think of yourself and of your future.

JOIN MUTUAL! Sign a contract! And put your thinking, your effort, and your part of the crop, actively behind this practical plan to put the citrus industry back on its feet.

FLORIDA CITRUS MUTUAL

**FOR SCALE AND
WHITEFLIES USE
FLORIDOIL!®**

This high-grade emulsion for protecting citrus against scale and whiteflies contains 83% oil. It has been tested by the Lake Alfred Experiment Station, and meets their requirements as to amount of oil deposited. The recommended dilution rate for FLORIDOIL is 1 to 55.



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FLORIDUST* DUSTING SULFUR is a finely ground sulfur, similar to MULSOID SULFUR® that is specifically intended for use as a dust. Use at the recommended rate of $\frac{1}{4}$ pound per tree. Other Sherwin-Williams Dusting Sulfurs highly effective for the control of rust mites include DRY LIME SULFUR and SULFIX® SULFUR.



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Agricultural Chemicals Division, Dept. K-1, Cleveland 1, Ohio; or Tampa, Florida. (Export Division, Newark, New Jersey).



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AGRICULTURAL WEED-NO-MORE*
effectively controls Water Hyacinth

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SHERWIN-WILLIAMS®
AGRICULTURAL CHEMICALS



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Plans Of Florida Citrus Mutual

The board of directors of Florida Citrus Mutual has approved a statement of policy and plans for the organization. The machinery of operation is given in this statement. A report was presented on the contemplated membership drive and two additional directors were named, as follows: James C. Morton, of Waverly, who also heads the Mutual's organizational committee, and C. Walton Rex, of Orlando, a former member of the Florida Citrus Commission.

Some of the membership drive plans outlined included mass meetings to be held in Lakeland, Tampa and Orlando within the next two or three weeks to explain the mutual in greater detail to all persons in the industry. Other meetings will be held later in smaller communities throughout the State.

In addition, representatives of the mutual will explain the organization at meetings of the state's financial, merchandising, chamber of commerce, transportation, citrus supply and press groups.

The Florida Citrus Mutual is an association of growers, shippers, processors and handlers created to stabilize the citrus industry and improve prices through collective

marketing and other cooperative effort. It is formed under the laws of Florida, commonly known as the Agricultural Act, under which all cooperatives are formed, and the Capper-Volstead Act of Congress, which provides for cooperative marketing of agricultural products.

It may be likened to the California Fruit Growers Exchange or other similar marketing cooperatives. The Florida Citrus Mutual did not originate with any segment of growers, shippers or processors, but from the Florida Citrus Commission, which represents the entire industry. Four-fifths of the directors are growers. Others represent growers. The board of 22 members was chosen as a cross section of the entire industry.

The mutual has many powers, some of which will be exercised soon, others at a later date, others perhaps never. The immediate objective is price stabilization which involves regulation of movement to auction. It is impossible for Florida Citrus Mutual to begin operation until at least 75 per cent of the tonnage is signed.

The statement admits that the present program is not perfect and the Mutual asks if anyone

has anything better to offer, they will welcome the contribution.

The plan and policy follows:
Plan and Policy of Florida Citrus Mutual

1. Definition

Florida Citrus Mutual is an association of growers, shippers, processors and handlers created to stabilize the citrus industry and improve prices through collective marketing and other cooperative effort.

2. Legal Basis

The association is formed under the Laws of Florida, commonly known as the Agricultural Cooperative Act, under which all our cooperatives are formed and the Act of Congress, commonly known as the Capper-Volstead Act which provides for cooperative marketing of agricultural products.

When the Charter, By-Laws and form of Contracts were prepared, they were submitted to the United States Department of Agriculture with a request to the Secretary for a legal opinion from his department as to their validity, upon which the Secretary gives the following:

"The Solicitor of the Department acting under the Cooperative Marketing Act (7 U.S.C. 453) has informed me he is of

the opinion that the organization proposed, if formed and operated in accordance with the draft of the organization papers, would come within the scope of the Capper-Volstead Act."

3. Purposes and Powers

Articles II and III set forth in legal verbiage the purposes and powers of the association. These are made as practicable within the law, for no one can foresee all the problems that may arise. Machinery is therefore provided by which adjustments can be made from time to time, as experience dictates. Immediately and essentially the purpose is price stabilization through cooperative marketing, but authority is given for other allied cooperative efforts, such as, research, improvement in freight rates, packing and processing methods, production and so forth.

4. Machinery

The plan has three essential elements which for convenience may be defined in the following terms:

1. The "association" referred to as Mutual.
2. The "operating member."
3. "Producing Member"

The "association" as referred to is the machinery through which the "operating members" and the "producing members" function. It is in short a super-cooperative through which all elements can work together for mutual benefit. The distinguishing mark of the "operating member" is that he must have picking or processing facilities. He is therefore, either a grower or representative of a grower. Such qualified "operating member" whether cooperative or independent, corporation or individual, operates his own facilities but under the supervision and direction of Mutual.

In order to guarantee the full cooperation of each "operating member," he is required to execute a contract with Mutual agreeing to abide by its rules, regulations and orders, and subjects himself to a damage of \$5,000 for each violation.

The term "producing member" is applied to the grower who has no packing or processing facilities, but is engaged solely in the production of fruit. To secure complete cooperation, he is required to execute a contract agreeing to market his fruit only through "operating member" or members of

his choice. By contract, he is required to pay twenty-five cents per box, in the event he disposes of his fruit in violation of his contract.

5. Operation

Mutual is operated by a board of directors elected annually by vote of the operating members. There are now twenty-two. Directors may or may not be shippers, growers or processors. This is in keeping with the law and provides latitude for the use of the best intelligence and experience from whatever source it may come. The present board of directors represents a cross section of the various segments of the industry and the various sections of the state where citrus is grown. This board is the governing body and is authorized to designate an executive committee of not less than three, to carry out the administrative details under the direction of the board.

In short, the association may be likened to our government, with the Charter representing the Constitution, the rules, regulations and the orders of the association representing the Laws. The directors are officers representing the operators and producers, it being just as impossible for 15,000 growers to function directly as it is for 150 million citizens to act directly in the making of laws. Of necessity, the individual must act through his representative. Likewise, in Mutual the "producing member" is represented by his chosen "operating member."

It may be likened to the California Fruit Growers Exchange or other similar marketing cooperatives. The individual is not a direct member of such exchange but of a sub-organization which represents him in the larger.

While the Charter authorizes marketing directly by Mutual, all recognize that there is no one organization which can now handle the entire crop. Therefore, Mutual seeks to accomplish the same result by the cooperative effort of the "operating members" utilizing their facilities but under the supervision and direction of the association.

The Florida Citrus Mutual did not originate with any segment of growers, shippers or processors, but from the Florida Citrus Commission which represent growers. The board was chosen as a cross

section of the entire industry. There being no organization of shippers or processors to select directors, the organization committee used the only practical method and designated the present board, recognizing every segment of the industry and every citrus section of the State.

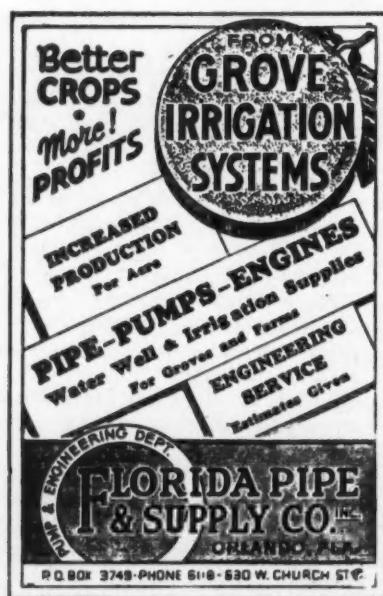
6. Operation

Mutual has many powers, some of which will be exercised soon, others at later date, others perhaps never. The immediate objective is price stabilization which involves regulation of movement to auction. No volume pro rate except to auction is permitted under the By-Laws, unless approved by an affirmative vote of 75 per cent of the directors. This should be sufficient proof of the wisdom of any measure.

It is not contemplated that Mutual will begin operation until at least 75 per cent of the tonnage is signed.

It is admitted that the present program is not perfect. It is a sound foundation on which to build and can be made to work if given reasonable and sincere support. Certainly it is better than what we have. If anyone has anything better to offer, Mutual will welcome the contribution.

Any program will require effort, teamwork, patience and faith. We can build constructively only from within. Our choice is between Mutual cooperation and a free-for-all survival of the fittest.



Blackfly Investigations And Control In Mexico...

Blackfly (spiny citrus whitefly) investigations in Mexico for the purpose of developing means for the control of this pest will be started immediately by the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, in cooperation with officials of the Mexican government. Funds for the Bureau's participation were provided in the Urgent Deficiency Bill recently passed by both houses of Congress and approved by the President.

The program will provide for the introduction of natural enemies of the blackfly into the infested areas on the west coast of Mexico and the development of effective artificial means of control. Mr. J. F. Cooper, one of the Bureau's entomologists will head up the investigational work in Mexico. Incidentally, Mr. Cooper was stationed at Key West, Florida, at the time the State Plant Board was engaged in the eradication of blackfly at that place and the Board's employees found him to be an able and practical investigator. Mr. H. D. Smith, another Bureau employee, will proceed shortly to Cuba to collect the beetle predator that has been so effective in the control of blackfly in that country and arrange for its shipment to Mexico. He will then go to the Orient to seek natural enemies likely to flourish in the dry areas of Mexico in which blackfly is established.

The above information was contained in a letter written by Dr. P. N. Annand, Chief, Bureau of Entomology and Plant Quarantine, to the Plant Commissioner. In his letter Dr. Annand stated that the favorable consideration of the blackfly item by Congress was undoubtedly aided by the interest manifested by growers in Florida, the State Plant Board, and members of the State's Congressional delegation. That Dr. Annand was sincere in his belief is evidenced by the following paragraph contained in a letter from Senator Holland to the Plant Commissioner

By ARTHUR C. BROWN
State Plant Commissioner

and reporting favorable progress on the blackfly appropriation:

"I have just finished talking on the telephone with Dr. Annand, and he seemed to be well pleased on the whole with the action taken."

It is not the intent of the Bureau officials to undertake large-scale control activities for the benefit of growers of Mexico. Their participation will be confined to investigational work only. However, growers of Arizona, California, and New Mexico, fearful that blackfly will become established in their groves unless it is brought under control in Mexico, have raised a fund of \$25,000 to be used in an attempt to eradicate blackfly from several of the more northerly districts of Mexico. This project is under the direction of R. S. Woglum, head of the Pest Control Division of the California Fruit Growers Exchange. Work has already started in the Guaymos-Empalme district located in the State of Sonora, about 250 miles south of the Mexico-Arizona boundary line. Some of the infested trees at Empalme were so large that it was necessary to prune them severely to permit of the application of the oil sprays used. The infestation in this area is comparatively light. After working in the Guaymos-Empalme district for some three or four months, the spray crews will then go into the more heavily infested areas to the south, located near Los Mochis, Sinaloa.

The spray mixture contains 1½ percent oil. To this is added rotenone at the rate of 1¼ pounds to each gallon of spray solution. The oil content of the spray mixture used in eradication of blackfly at Key West varied from .66 percent to 1 percent, and applications were made at 20-day intervals.

Parasites and predators introduced into Cuba, the Bahamas, and the Canal Zone from Malaya, a

country in which the humidity is high throughout the year, apparently cannot thrive in the drier portions of Mexico in which the blackfly is established. It is the intention of Bureau officials to send collectors to India and adjacent countries to search for natural enemies of blackfly likely to be adapted to the drier portions of Mexico.

Blackfly was first reported from Mexico when it was found in the vicinity of Eldorado, on the west coast. It soon spread over the western coastal plain and eastward south of the central Mexican plateau. It is also established over considerable areas on the eastern coastal plain near Valles on the highway to Laredo, Texas. This fact should be a matter of concern to Texas growers.

It is approximately 250 miles from the infested properties in the Guaymos-Empalme district on the west coast of Mexico to the international line between Mexico and Arizona. A desert some eighty miles in extent between Empalme and Hermocillo may effectively check the northward spread of the pest. Between Hermocillo and the Arizona state line there is sufficient vegetation to enable the blackfly, unless checked, to continue its march across the international line into the United States.

Does the presence of citrus blackfly in nearby foreign countries present a threat to citrus production in the United States? It is difficult to predict the behavior of a given insect or disease in a new locality on the basis of its occurrence in another place. But from information at hand it is believed that blackfly is a pest that should be kept out of Florida and elsewhere in the South. The insect is usually thought of as a tropical pest incapable of survival in more temperate localities. It is the opinion of Dr. A. C. Baker, in charge of the Bureau's fruit fly investigations in Mexico City and an authority on the blackfly, that not many people appreciate the hardiness of the insect. He drew up its first technical descrip-

tion and has observed its behavior in a number of countries. He accompanied the late Dr. J. H. Montgomery, at that time Assistant Plant Commissioner, to Cuba to arrange for the introduction of natural enemies of blackfly. He studied it at Lahore, India, which he described as being one of the hottest places he knows of and one with the greatest extremes in temperature and humidity. During the dry season the ground was baked to the hardness of a brick. In 1911 a freeze killed shrubbery to the ground. Yet in 1912 he was able to collect blackflies that had survived the freeze of the previous year. In Mexico the insect has completed its life cycle on infested plants that had been exposed to temperatures of 24.8 degrees F. Its host list includes 94 species of plants in 44 plant families. It is known that blackfly severely injured citrus trees in Cuba and the Bahamas before it was brought under control by natural enemies. At Key West, Florida, eradication activities were started before it had an opportunity to demonstrate just how serious it might be at that place.

As it has been stated previously, growers and state officials of Arizona, California, and New Mexico have provided funds to be used in the eradication of blackfly from the infested areas located on the upper west coast of Mexico. Mr. Woglum and others in charge of the work have the training, experience, and incentive necessary to direct the attempt to a successful conclusion. However, eradication of an insect or disease from localities in the United States, where the project has the support of growers, the public, and the courts is a difficult task. It is far more difficult in a foreign country where the rank and file of the growers or the public in general are not convinced of the need for eradication; or, if convinced, do not appreciate the need for the strictest compliance with rules and regulations and sanitary precautions that must govern the eradication operations.

Records of the outcome of two cooperative control projects apparently substantiate this belief. Blackfly, shortly after its introduction into the Havana section of Cuba, had increased in numbers so as to arouse the apprehension of growers in Florida, who believed

that unless it was controlled in Cuba it would soon make its way into this state. In 1917 the State Plant Board made arrangements with Cuban officials whereby a number of the Board's inspectors were sent to Cuba to assist authorities and growers in the eradication of the pest.

These individuals soon realized that, because of lack of interest on the part of the public and the carelessness of spray crews, no worthwhile results were to be obtained. The Board's employees were recalled and the fly was permitted to increase in numbers until it was brought under control by parasites and predators introduced from Malaya.

Shortly after foot-and-mouth disease was introduced into Mexico on cattle imported from Brazil, officials of the United States and Mexican governments entered into a cooperative agreement for the purpose of eradicating the disease. Our interest, of course, was to prevent widespread dissemination and entry into the United States. The plan of operation — slaughter of diseased cattle — met with considerable opposition. Following the murder of a veterinarian assigned to eradication activities and an officer and six soldiers in his escort, the project was discontinued. Mexican officials have now turned to the use of vaccines, a means of control that was tried, with unsatisfactory results, in Brazil and Argentina. Our government has sent specialists into England and Holland to work with scientists of those countries in the development of a more effective vaccine. The unsuccessful attempt to eradicate foot-and-mouth disease in Mexico cost the taxpayers of the United States some \$35,000,000.

The menace presented by the presence of blackfly and foot-and-mouth disease in Mexico, and other insects and diseases in the tropical and sub-tropical countries of the western hemisphere, emphasizes the need for a strong national foreign plant and animal quarantine policy. It would appear, however, that our government is more inclined towards a policy seeking to make it easier for people and commodities to move into this country. Some of our officials believe—and are working to this end—that this country must take the lead among world powers in the elimination of as many as possible of the ex-

isting regulations governing foreign travel and commerce. In this they have the support of commercial air transport agencies, whose officials are anxious to make air travel popular, while at the same time reducing operating expenses. Air travelers, of course, are in favor of the elimination of what they regard as time-consuming delays and annoyances. In their minds they blame governmental red tape for all delays experienced in Customs and Immigration inspection rooms. As a matter of fact and record, many of these delays are due to the inadequate terminal facilities and services furnished by the air lines themselves. Thus we find growers and farmers heartily in favor of a more stringent foreign plant and animal quarantine policy, while the Secretaries of State, Commerce and Agriculture, representatives of foreign countries and commercial air transport agencies, and air passengers are apparently determined to make it easier for people and commodities to enter the United States.

The Civil Air Coordinating Committee, a committee appointed by President Truman to make recommendations for the purpose of expediting civil air transport, has recommended, as one means of speeding up foreign air travel, that inspections of passengers and baggage at certain ports of arrival in the United States be discontinued, and that instead such inspections be made at Honolulu, Mexico City, and San Juan, Puerto Rico and that air passengers, following such inspections be permitted to proceed to their destinations after arrival on the mainland without further examinations. The Secretary of Agriculture has approved of this procedure on the grounds that confiscation and destruction of pest-ridden plants and plant products in a foreign country or possession would afford better protection than to permit such commodities to come into the United States. This plan is already in operation at Honolulu. Passengers and baggage from Australia and New Zealand en route to the United States via Honolulu are inspected at that place. Arrangements are now being made for inspection at Mexico City of passengers and baggage from Central and South America; and for inspection at San Juan of passengers and baggage from Central and South America

and the lower Antilles.

The State Plant Board and growers in Florida are opposed to inspection at San Juan instead of at Florida ports, and have carried their protests to the Secretaries of State, Commerce, and Agriculture. It is the belief of Florida's officials and individuals that, because of the many complications likely to be encountered in plant quarantine enforcement, the State's agricultural and horticultural interests can best be served through the utilization of the services of employees of the Board who operate under the direction of the Plant Commissioner and the critical scrutiny of growers with full appreciation of the fact that indifferent or careless performance of their duties will be followed by transfer or discharge, than by federal employees. The latter, residents of other states, possibly of a foreign possession, would operate under the supervision of federal officials located at Washington, D. C., as well as under the benevolent protection of the Civil Service Commission.

In this connection the statement made by an able federal administrator to the effect that the technic for disciplining indifferent federal employees is so complicated that few supervisors care to invoke it, is a significant one.

The fact that California authorities and growers have apparently accepted inspection at Honolulu instead of at California ports may be surprising to those who are aware of the zeal with which residents of that State have insisted on their right to enforce plant quarantine regulations. This acceptance is due in large measure to the fact that at times fogs so obscure ports of entry on the West Coast that airliners from Hawaii are required to by-pass them and proceed to inland fields, unstaffed by inspectional personnel. In such cases it is necessary to send inspectors from the nearest point, or forego inspection altogether. It would appear that inspection at Honolulu is the lesser of two evils.

The attitude of growers in states other than Florida with regard to inspections at San Juan and Mexico City is not known to the writer. Quarantine officials of these states are not apparently greatly interested. This may be due to the fact that neither growers nor officials of the other states have the intimate knowledge of and interest

in foreign plant quarantines possessed by residents of this State.

The risk to the nation's cattle industry presented by the presence of foot-and-mouth disease within 250 miles of the international line should arouse the interest of cattlemen, particularly in the Southern states. As previously stated, slaughter of diseased cattle has been discontinued and reliance for control of the disease is placed upon the use of vaccines, a measure of questionable value. There is nothing to prevent the spread of the disease other than the quar-

antine regulations of the Mexican government. And in a country where eight men were murdered at one time while in the performance of their duties it is not likely that officials who attempt to enforce the quarantine will have the support of the public.

If our officials are sincere in their belief that the entry of foot-and-mouth disease into the United States should be prevented, in so far as possible, every avenue for its entry should be closed. The casual organism is a highly in-

(Continued on page 11)



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THE FLORIDA CITRUS MUTUAL

The Florida Citrus Mutual, Florida's newest, most progressive and, we believe, most promising citrus organization, is now actively engaged in a membership drive. The Florida Citrus Mutual is a super-cooperative organization, embracing as it does the individual grower, packers, canners and cooperative organizations; its purpose being to control distribution and stabilize prices.

At a recent mass meeting held in Lakeland, nearly one thousand growers, shippers, canners and heads of cooperative organizations turned out to hear the plans of the newly organized Mutual explained and to study the effect it might have on their own operations and their own prosperity. Many of those present at the meeting signed contracts on the spot; others took contracts home for more exhaustive study.

Later, membership committees for each of the citrus producing counties and sections of the state were appointed by James C. Morton of Waverly, head of the Mutual's organizational committee. These committees are now actively at work securing signers of contracts, with most of them reporting favorable reception, not only among growers but also among shippers and canners.

A complete outline of the plans and purposes of the Citrus Mutual is printed elsewhere in this issue. The primary purpose of the Mutual is, of course, to bring about a stabilization of prices at a level which will assure the grower a return which will afford him at least a moderate profit above the cost of production. This is to be brought about through control of distribution and the elimination of low grade fruit and the production and marketing of higher quality.

It appears to us that the Florida Citrus Mutual holds greater promise for the grower, the shipper and the canner than any movement which has been presented to the industry heretofore. But, to become effective, it must have the support of by far the greater majority of those engaged in the industry. Seventy-five per cent of the growers, or at least growers representing seventy-five per cent of the crop, has been set as the minimum at which successful operation of the Mutual may be expected. That is the goal toward which the various county membership committees are striving. With the destructive record of the

past two seasons in mind and with the promise of improvement through cooperative effort held out by the Mutual, it would seem that goal should be speedily attained.

Officered by some of the most influential leaders in the industry, approved by the Florida Citrus Commission and by some of the leading cooperative organizations of the state, the Florida Citrus Mutual is, we believe, worthy of the confidence of the citrus growers of Florida and others connected with the industry or with the affiliated industries of the state. The Florida Citrus Mutual should be fully organized and in successful operation by the beginning of the next citrus shipping season. It appears to afford the one hope of improvement over the chaotic conditions which have prevailed during the past two seasons — the one present hope of leadership out of the wilderness of low prices and financial loss. But, while the Mutual may lead the way, the grower must do his part by offering for sale only QUALITY fruit.

"SIX INCHES FROM STARVATION"

Writing for the May issue of the American Magazine, Fred Bailey, agricultural and food production authority, makes a strong plea for soil conservation. At the present rate of erosion and the constantly increasing population, Bailey foresees an actual inability to produce sufficient food for our actual needs by 1970.

"Our national welfare, our ability to feed and clothe ourselves, depend upon prompt and vigorous action at once," says Bailey who is a member of the 11-man committee created by Congress to work with the Secretary of Agriculture in promoting research into farm production and marketing. "If voluntary methods do not succeed, Congress should act promptly and decisively to make compliance with soil conservation practices mandatory."

In an effort to determine the extent of erosion, tests taken in New Orleans have shown, according to Bailey, that the topsoil equivalent of one \$10,000 midwestern farm washes down the Mississippi every 30 minutes.

"Today one-third of our original 9-inch layer of soil has washed and blown away," he asserts. Each year we are, as a nation, moving 18 months closer to starvation because half as much fertility washes or blows away as we use in the production of foods and fibers.

"In normal times, an American family with a \$2,000-a-year income needs three acres per person to maintain its standard of living. If every acre suitable to crop production were put into use, we'd have some 466,000,000 acres in crops, or 3 1-5 acres per person."

Granting that this acreage was maintained at the present capacity for production, Bailey says that owing to population increases that 1-5 margin of safety it offers would have disappeared by about 1960. "By 1970," he adds, "at the present rate of population increase, we would have only 2 4-5 acres per person, 1-5 of an acre less than needed for only a fair standard of living."

BLACKFLY INVESTIGATIONS AND CONTROL IN MEXICO

(Continued from Page 9)

fectious virus that can be disseminated by diseased animals, and possibly, by soil, or other contaminated articles or commodities. It may be desirable, as a precautionary measure, to require the disinfection of the bottoms of the shoes or feet of every applicant for entry into this country, regardless of the mode of transportation. The writer can visualize through disinfection at ports of entry on the international line where federal inspectors will operate more or less under the scrutiny of representatives of the live stock industry. He cannot visualize thorough disinfection at Mexico City when an influential governmental official, or citizen, defies a federal employee who must operate many miles away from the comforting support of the cattlemen of the United States. It is essential, therefore, that treatments of this nature, like inspections of plants and plant products, be performed at ports of entry in the United States, and not in a foreign country or possession.

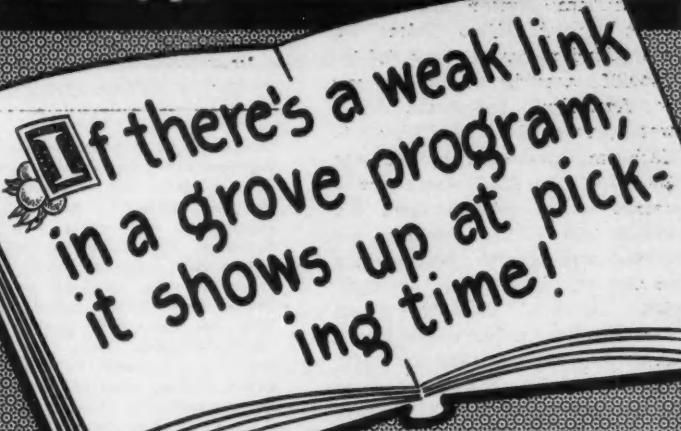
Some time ago the writer stated that by reason of the great expansion in international air transport foreign plant quarantine enforcement has arrived at the forks of the road, where a turn to the right will lead to more effective enforcement, and the road to the left will lead to "one world" in so far as plant pests are concerned. If the left-hand turn is not to be taken, it is time for farmers and growers of this country to demand that the nation's foreign plant quarantine enforcement system be operated for the benefit of this country, and not for the benefit of foreign countries, international air transport agencies, and their patrons.

Farm cisterns and wells should be inspected periodically to make sure that coverings are secure.

Increased production of goods is the only thing that will raise the standard of living.

Molds producing penicillin are not the only possibility of obtaining germ-killers from plants. Antibiotic activity has been noted in extracts of a large number of higher plants.

TRUISMS of a Citrus Grower



If there's a weak link
in a grove program,
it shows up at pick-
ing time!

Underfed trees can't produce the QUALITY fruit you hope for when the next crop season rolls around.

Summer fertilization is an important link in the cycle of good grove care that is essential for good fruit.

Let the GULF Field Man in your section survey your grove now and recommend a fertilization program to meet the needs of your trees.

And while fruit is sizing up, keep it clean and your trees free of insect pests and diseases by using SHERWIN-WILLIAMS Agricultural Chemicals. GULF Field Representatives can supply you promptly with these nationally-tested spray and dust materials.

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Where Do We Go From Here?

Cash farm income set a new record in the United States for the calendar year 1947 at \$30,134,744,000, according to the Bureau of Agricultural Economics. This was 23 percent more than for 1946. Cash farm income for Florida was \$345,377,000 in 1947 which was a decrease of 14 percent from the previous year. The decrease for Florida was more percentage than for any other state. Florida, South Carolina, Delaware, and North Carolina in the order named had decreases from 1946 to 1947. All other states showed increases with Mississippi having the highest percentage change of 56 percent. California and Texas, both of which produce citrus, increased 3 and 42 percent, respectively, in cash farm income. Income from citrus constitutes a larger proportion of Florida's cash farm income than it does of the other two states. Hence, the drop in citrus prices affected Florida's income most.

The preliminary estimate of the value of Florida citrus marketed and to be marketed during the 1947-48 season indicates a decrease of 29 percent from the value of the 1946-47 crop. This decrease in income from citrus is taking place while production costs are increasing. Farm production costs for the United States reached a new high during the 1947 season. The same is true for production costs of Florida citrus.

In the United States the index of prices paid for goods and services used in farm production increased 22 percent in 1947 over 1946. The 1947 index stood at 184 with the 1935-39 average as 100. Wage rates increased 8 percent between the two years and stood at 346 in 1947. Other increases for items important in citrus production were farm machinery 14 percent, equipment and supplies 14, and fertilizer 11 percent.

Production costs per acre on 225 Florida groves over 10 years of age in the 1946-47 season as compiled by the Agricultural Extension Service increased 15 percent over the previous season. This increase in total costs was brought

By ZACH SAVAGE
Associate Agricultural Economist
Agricultural Experiment Station

Mr. Zach Savage, Associate Agricultural Economist, Florida College of Agriculture, has just issued a preliminary report on the costs and returns on Florida citrus groves on which records have been kept for the 1946-47 season. While this report covers only 194 of the 225 groves on which records were kept, it will be of much interest to grove owners and others vitally interested in the citrus industry of Florida.—Editor.

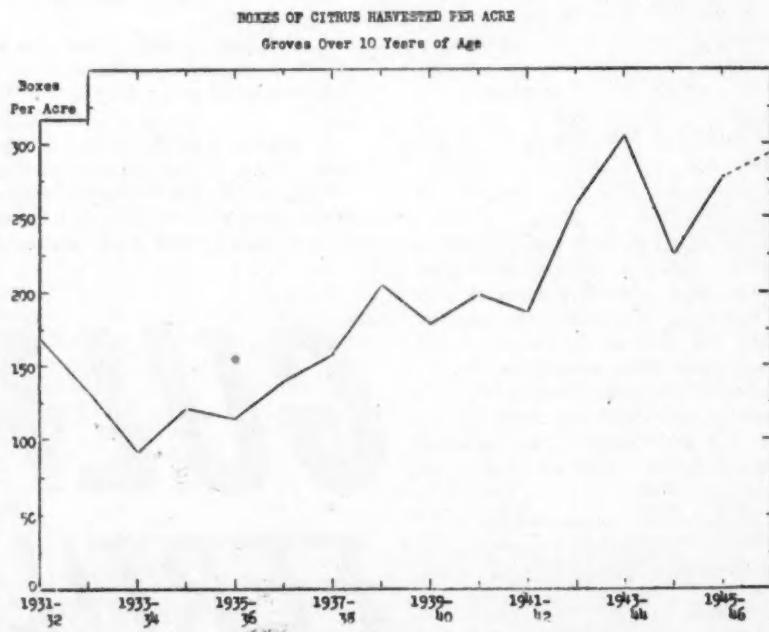
about by increases in labor, power, and equipment of 17 per cent, fertilizer materials, 9, spray and dust materials 50, and state and county taxes 28 percent. The item of miscellaneous costs decreased 10 percent. With items of produc-

from fruit from the 1945-46 season. This decrease in returns per acre would have been greater with the same total fruit production had there not been an increase in production per acre. The production increase per acre was 6 percent.

Net returns above operating cost on the basis of returns from these groves were \$48 per acre. This was a decrease of 88 per cent from the previous season.

Operating costs per box increased 8 percent in 1946-47 over 1945-46, and were 54 cents in 1946-47. Returns from fruit decreased 64 percent, and net returns above operating costs decreased 89 percent on the per box basis.

Most businesses are subject to fluctuations. Such is certainly true in the business of citrus production. The average net returns above operating costs for the ten-year period of 1931-41 averaged



tion costs increasing in these proportions, it is difficult for the citrus grower to avoid red ink.

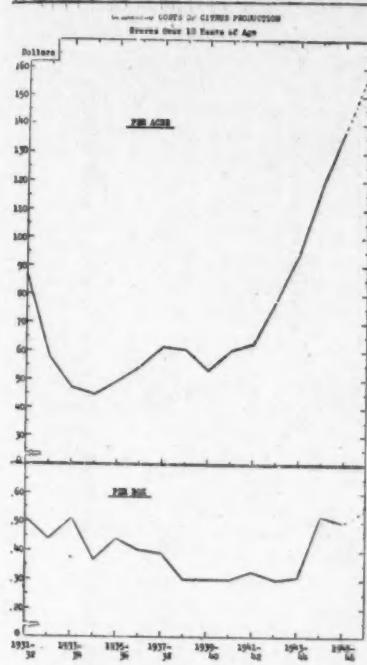
Returns from fruit are not complete for all groves at the present time but returns on 194 groves averaged \$205 per acre for 293 boxes of fruit. This was a decrease of 62 percent in returns

\$40 per acre, while the average for the five-year period of 1941-46 averaged \$323. Any business without fluctuations in net returns would soon be badly overcrowded, if those returns were favorable.

In a free economy with open competition such as ours, the grower who can do a better job

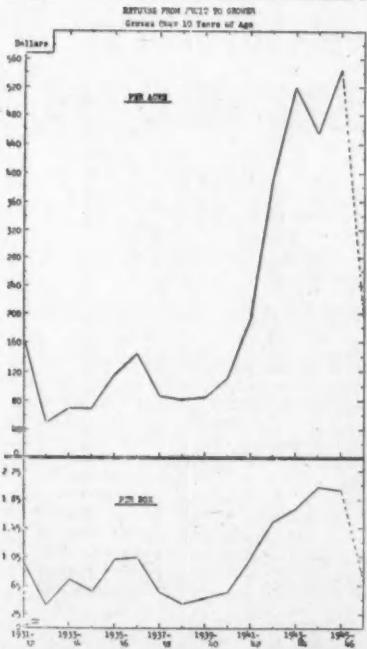
of producing citrus at a little less cost than the average, will stay in the game. The grower whose costs are far above the average

water, and labor are important. Some pruning, cultural and other operations may be eliminated or postponed very profitably in many instances. With prices of goods and services used in citrus production increasing as they are at this time, elimination of operations or practices is the chief direct approach to cost reductions. Indirectly, unit costs may be reduced by increasing yield. The removal of cull trees would very materially assist in this regard. Such trees



may eliminate himself during times of low-priced fruit.

The best thing the individual grower can do for himself is to



keep production as high as possible and hold costs at a minimum. To do this, efficient use of fertilizer, sprays, dusts, irrigation

Superior Quality.....

To produce quality fruit, we believe it will be necessary to use less nitrogen this summer, keeping the potash and phosphate applications fairly high. For good interior quality, it is recommended that a higher percentage of organics be used than has been the custom in recent years.

For the necessary minerals NACO'S 5-STAR MIXTURE should be sufficient for good maintenance.



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SUMMARY OF COSTS AND RETURNS PER ACRE AND PER BOX FOR GROVES AVERAGING OVER 10 YEARS OF AGE

	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47*
Number of grove records	45	99	182	211	254	272	270	261	262	266	262	240	222	221	205	225
% Record acreage of state bearing acreage	0.2	1.4	2.2	2.2	2.7	2.8	2.8	2.8	2.8	2.9	2.7	2.3	2.1	2.1	1.9	1.9
Total acres of records	583	3604	6269	6499	8221	8766	8869	9381	9303	9853	9372	8463	7913	7730	7221	7562
Average trees per acre	1.3	2.6	3.4	3.1	3.2	3.3	3.3	3.6	3.6	3.7	3.6	3.5	3.6	3.5	3.4	3.4
Average age	17	18	17	18	18	19	19	19	20	21	22	23	23	24	24	24
Number of trees per acre	63	58	58	59	60	60	60	61	61	62	62	63	63	62	62	62
Percent trees grapefruit	28	31	32	33	32	30	29	32	32	32	32	31	31	31	30	30
Boxes harvested per acre	169	133	92	121	114	138	158	205	179	199	187	205	225	227	293	
Costs per acre:																
Labor, power, and equipment	\$31.71	\$25.27	\$19.66	\$17.33	\$19.54	\$21.72	\$23.08	\$22.47	\$22.25	\$26.42	\$28.23	\$29.31	\$37.27	\$48.28	\$63.89	\$74.49
Fertilizer and amendments	37.92	22.89	17.73	18.94	19.22	21.80	26.95	26.70	19.90	20.73	21.50	32.42	41.16	48.73	52.58	57.26
Spray and dust materials	3.98	3.38	3.13	3.14	2.99	3.81	4.85	4.85	4.67	5.55	6.07	7.40	6.53	9.55	8.16	12.28
State and county taxes	11.76	4.92	5.10	4.96	5.66	5.04	4.40	4.57	4.41	4.39	4.07	4.73	4.18	4.74	6.08	
Miscellaneous	.89	1.44	1.61	.53	2.49	1.79	1.71	2.05	2.06	2.40	4.70	4.92	7.53	8.24	7.47	
Total operating costs	86.26	57.90	47.23	44.90	49.90	54.87	61.63	60.47	53.45	60.07	62.59	77.90	94.61	118.27	137.61	157.78
Interest on grove valuation at 6%	46.69	37.21	36.33	36.13	33.12	32.73	32.30	29.28	29.46	28.87	29.41	29.79	29.89	31.94	31.72	37.64
Total cost without owner's supervision	132.95	95.11	83.56	81.03	83.02	87.60	93.93	89.75	82.91	88.94	92.00	107.69	124.50	150.21	169.33	195.22
Returns per acre																
Returns from fruit	164.82	49.96	68.21	68.99	115.13	144.10	87.77	81.29	85.39	117.57	190.03	393.24	519.68	454.69	544.94	205.09
Net returns	31.87	-45.15	-15.35	-12.04	32.11	56.50	-6.16	-8.46	2.48	22.63	98.93	285.55	395.18	304.48	375.61	9.87
Net returns above operating costs	78.56	-7.94	20.98	24.09	65.23	89.23	26.14	20.82	31.94	51.50	128.34	315.34	425.07	336.42	407.33	47.51
Costs per box:																
Labor, power, and equipment	.19	.19	.21	.14	.17	.16	.15	.11	.12	.13	.15	.11	.12	.21	.23	.25
Fertilizer and amendments	.22	.17	.19	.16	.17	.16	.17	.14	.11	.12	.13	.13	.21	.19	.20	
Spray and dust materials	.02	.03	.03	.03	.03	.02	.03	.03	.03	.03	.02	.02	.04	.03	.04	
State and county taxes	.07	.04	.05	.04	.04	.03	.02	.03	.02	.02	.01	.02	.02	.02	.02	
Miscellaneous	.01	.01	.02	.01	.01	.01	.01	.01	.01	.02	.02	.04	.03	.03	.03	
Total operating costs	.51	.44	.51	.37	.44	.40	.39	.30	.30	.33	.30	.31	.52	.50	.54	
Interest on grove valuation at 6%	.27	.28	.40	.30	.29	.28	.21	.14	.16	.15	.16	.12	.10	.14	.11	.13
Total cost without owner's supervision	.78	.72	.91	.67	.73	.63	.60	.44	.46	.45	.49	.42	.41	.66	.61	.67
Returns per box:																
Returns from fruit	.97	.38	.76	.57	1.01	1.04	.56	.40	.47	.56	1.02	1.53	1.71	2.02	1.97	.70
Net returns	.19	-.34	-.17	-.10	-.28	-.41	-.04	-.04	.01	.11	.53	1.11	1.30	1.36	1.36	.03
Net returns above operating costs	.46	-.06	.23	.20	.57	.64	.17	.10	.17	.26	.69	1.23	1.40	1.50	1.47	.16

* Returns from 194 groves of 6417 acres.

** Less than \$.005.

should be replaced with young trees from proven strains that produce high yields.

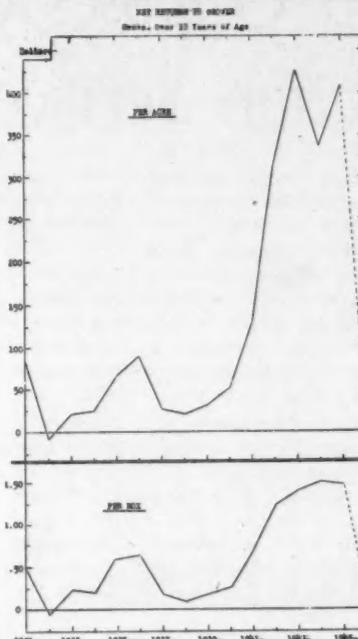
No doubt there are economies and changes that could and should be made in our packing, processing, marketing, shipping, and distribution of Florida citrus. Yet the matter of economical and efficient production is ever present with us and should not be overlooked.

Returns from fruit are complete and tabulated on only 194 groves of our records for the 1946-47 season. We feel that returns from these 194 groves are indicative of what the final figures will be.

As will be noted from the 16-year summary sheet, expenses are given for the 1946-7 season on 225 groves. The operating cost per acre was \$157.58, a 15 percent increase over the previous season.

Returns from fruit on 194 groves averaged \$205.05 per acre. This figure is only 38 percent of the returns on 205 groves for 1945-46. The price received per box was 70 cents in 1946-47, or 36 percent of the price for the previous season. Had there not been

an increase in fruit harvested per acre the grower returns would not



have been as good as they were. The fruit harvested averaged 293 boxes per acre, which was the

second highest figure of the 16 years of these records and 53 percent above the 191-box average for all seasons.

Net returns above operating costs were the lowest on a per-acre basis since the 1939-40 season. Six of the 16 seasons had lower net returns. The next returns per acre of \$47.51 was only 12 percent of that for the previous season, yet was \$7.50 more than the average for the 10-year period of 1931-41.

The summary sheet of the past 16 seasons contains data referred to above and data from which the four enclosed charts were prepared. These charts picture graphically some of these data.

Daylight-type bulbs are handy for laundry rooms because they make it easier to detect spots and stains, says REA specialists.

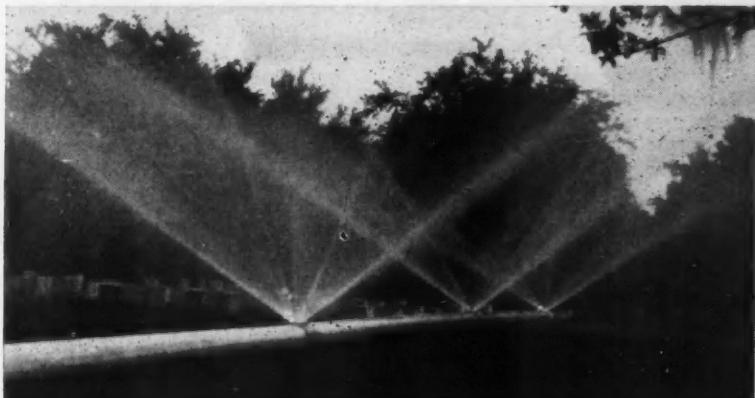
The National Safety Council says horses were responsible for more farm deaths than bulls.

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RACEBILT irrigation systems are built "by farmers for farmers," carefully engineered by men with aluminum "know how," and guaranteed to give years of trouble-free service. More important, RACEBILT'S exclusive "quick-lay" principle makes it possible to get into operation in record time — to provide life-giving water for your grove or farm that can save you thousands of dollars!

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Plant Board Opposes Change In Inspection Service...

Ever on the alert to protect the interests of Florida agricultural and horticultural interests, the Florida State Plant board has adopted a resolution strongly opposing an effort now being made to discontinue inspection at Florida ports of entry and substituting therefor inspections at Puerto Rico. Reasons for this opposition are set forth in the following resolution:

RESOLUTION ADOPTED BY THE STATE PLANT BOARD OF FLORIDA IN RE BAGGAGE INSPECTION AT SAN JUAN, PUERTO RICO

WHEREAS, Florida's chief source of income derives from the sale of its many agricultural and horticultural products; its geographical location is such that it is exposed on three sides to invasion by alien insects and diseases, especially from tropical countries; its transportation facilities, particularly air transport, are so highly developed as to magnify the possibilities of introduction of such insects and diseases; and its climate is conducive to their ready establishment and rapid dissemination; and

WHEREAS, the well being of Florida's agricultural and horticultural interests has been jeopardized on two occasions through the entry and temporary establishment of alien plant diseases and insects; (1) citrus canker, on citrus root stocks from Japan; and (2) Mediterranean fruit fly, the latter, possibly as the result of the decision of officials of the United States Department of Agriculture, who although informed of the fact that Spanish grapes were hosts of the Mediterranean fruit fly, permitted the entry of grapes produced in areas in Spain known to be infested with this fruit fly after inspections of the contents of only one keg out of each fifteen offered for entry at New York to disclose infestation; and

WHEREAS, growers of Florida, appreciative of the need for a strong defense against entry of foreign insects and diseases; cognizant of the fact that federal officials, by reas-

on of budgetary limitations, could not furnish personnel for foreign plant quarantine enforcement at Florida ports of entry to the extent believed necessary; and convinced of the fact that the State's interests could be served to better advantage through the utilization of the services of employees of the State Plant Board rather than federal employees, have since 1916 demanded that foreign plant quarantine enforcement in Florida be—in co-operation with the federal agency responsible for this activity—performed by the Board's employees, and have provided funds necessary to finance this service almost in its entirety; and

WHEREAS, the group of governmental officials who compose the Air Co-ordinating Committee, some of whom believe that the United States should take the lead among the world powers in the elimination of as many as possible of the existing regulations governing international air travel, has recommended that passengers and baggage en route from foreign countries be inspected at San Juan, Puerto Rico, Mexico City, Mexico, and Honolulu, Hawaii, instead of at ports on the mainland, and that passengers following their arrival in this country be permitted to proceed to their destinations with-

out further examinations; now, therefore

BE IT RESOLVED by the State Plant Board of Florida, in meeting assembled at Sarasota, Florida, this 8th day of April, 1948, after careful consideration of the representations of the Honorable John R. Alison, Assistant Secretary of Commerce, the Honorable N. E. Dodd, Assistant Secretary of Agriculture, and other responsible officials seeking to justify their recommendation that enforcement of foreign plant quarantines be performed at San Juan instead of at ports on the mainland; wholly sympathetic with the need for the elimination of outmoded and duplicate procedures affecting foreign travel and commerce; and appreciative of the value of inspection and treatment of foreign plants and plant products at points of origin, that it again go on record as being unalterably opposed to the proposal, for the following reasons:

a) Current foreign plant quarantine enforcement procedures on the mainland do not require the preparation of forms or other documents likely to irritate air passengers, nor are these procedures responsible for any appreciable delays in the orderly movement of passengers through inspection rooms, except in instances where



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violations of the regulations are observed. Parenthetically, it should be stated that in the opinion of well informed individuals no small part of the delays and irritations experienced by air passengers is due to the wholly inadequate terminal facilities provided by some air transport agencies at airports of entry.

b) There is a decided risk of entry of plant pests from Puerto Rico and from other countries via Puerto Rico, as indicated by the volume of infested and infected plants and plant products annually intercepted by the Board's quarantine inspectors.

c) Inspections at San Juan would place the responsibility for the protection of Florida against entry of plant pests from Puerto Rico and from foreign countries via Puerto Rico in the hands of federal employees, possibly natives of Puerto Rico, who will operate under the supervision of Bureau officials located at Washington, D. C., and who, although motivated by an unquestionable good will, cannot be expected to have a compelling interest in or responsibility for the State's welfare comparable to that manifested by the State Plant Board or its employees.

d) Inspections at San Juan would place the State Board in a position where it would be required to (a) accept without reservations inspections made at that place and permit passengers and baggage to enter without further examination; or (b) act within the State's constitutional rights to promulgate and enforce quarantines on products of a domestic state or territory believed capable of harboring destructive plant pests, a procedure that would unquestionably contribute to many delays and irritations on the part of air transport agencies and their patrons.

e) Recommendations of the Air Co-ordinating Committee seeking to facilitate air travel and commerce without recommending similar revisions or concessions to steamship agencies and their patrons may be regarded as unfair and discriminatory.

f) Board members cannot accept as justification for inspections at San Juan statements made by governmental officials that a somewhat similar arrangement in effect on the West Coast, wherein passengers and baggage en route to the United States via Honolulu are inspected at that place has worked out to

the satisfaction of all parties concerned. Growers and officials of the far western States may have accepted the Honolulu inspection as the lesser of two evils, due to the fact that inspection of planes from Honolulu was made difficult because of fogs that at times so obscured scheduled airports of entry that planes could not land at fields where inspectional facilities were available but were required to proceed to inland fields unstaffed by Customs, Public Health, Immigration, and plant quarantine officials, thereby making it necessary to send inspec-

tional personnel from the nearest inspection station, a costly, inconvenient, and inefficient procedure. AND BE IT FURTHER RESOLVED that the Board's Secretary be, and hereby is, instructed to send copies of this resolution to President Harry S. Truman; Secretaries Marshall, Anderson, and Harriman; members of Florida's Congressional delegation; growers and representatives of growers' organizations; trade journals and the press; and others interested in the prevention of entry of alien insects and diseases.

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Reports Of Our Field Men . . .

WEST CENTRAL FLORIDA— E. A. (Mac) McCartney

The rains occurring during the middle of April have supplied ample moisture and our fruit crop is setting in excellent condition. The rains were also beneficial to the vegetable growers all over the territory. In speaking about the setting of fruit we should state that this is true with the exception of grapefruit which appears to have a light crop. Most of our trees are in good condition and regardless of the low prices received for fruit growers will go forward with an application of fertilizer, while the poundage may be reduced in some instances a sufficient tonnage will be applied to maintain the tree in a thrifty condition. Our application is now under way and will be completed by the middle of June. Quite a few growers are spraying now or have finished with a copper-oil spray to control scale and melanose. There will be less spraying and more dusting done for the remainder of the season. Vegetable crops have been good this spring and the prices now being received are fair which means that most growers will probably make some money.

SOUTH POLK, HIGHLANDS AND HARDEE COUNTIES— R. L. (Bob) Padgett

It looks like another large crop of oranges has been set and is growing off very nicely in this territory. Marsh seedless grapefruit is showing a heavy crop. In many cases the grapefruit of seedy varieties will be extremely light. Weather conditions have been very favorable to citrus this spring with very few growers having to do any extensive irrigation. Considerable damage from melanose is showing up and this is especially true in the case of foliage, but there is also some damage to fruit. This is principally due to the lack of spray control and an abundance of dead wood which is the aftermath of the freezes of the past two winters. Our summer application of fertilizer will start

moving around the first day of May. Many growers are reverting to a program of better quality through more organics and less soluble nitrogen in their mixtures.

POLK COUNTY

J. M. (Jim Sample)

The summer fertilizer application is beginning to get underway, and, although the economic condition of most growers is depressed because of low fruit returns practically all plan to fertilize to the full extent of their means. Most operators feel that they will be able to supply the essential care to keep their groves producing and healthy, but they are sharply curtailing some items of pruning, cultivating, irrigating, etc. The new set of fruit is heavy and while some grapefruit blocks are light it is generally conceded that the supply will be plentiful next season on all varieties. From observations of the bloom and size of young fruit now on the trees, it appears that this new crop is from four to six weeks advanced over last year's crop. This is certainly desirable and every indication at this time is that we will have much better fruit during the early part of the coming season than we have had in several years.

HILLSBOROUGH & PINELLAS COUNTIES— C. S. (Charlie) Little

We are just getting our summer application of fertilizer underway at this time and this will be completed about the middle of June. While there is a tendency on the part of some growers whose acreage is heavy to grapefruit to curtail their poundage this application, other growers with their acreage made up mostly of oranges will go forward with a good application. Our crop of new fruit is beginning to grow off in good shape and since we had a very early bloom most owners are looking forward to the coming season with optimism because we will have some good quality to place on the market. We have had a great deal of

melanose this spring but fortunately it has been a lot more severe on foliage than on the new crop of fruit.

NORTH CENTRAL FLORIDA—

V. E. (Val) Bourland

We were experiencing quite a bit of drought up until the middle of April when we had several good rains that were very beneficial for both citrus and truck crops. A large number of growers in this section are using copper-oil sprays for the control of melanose and scale insects and are hoping that they will be able to get by during the summer without putting on an oil spray. Most valencia groves where the fruit is still on the trees are being dusted for the control of rust mite. Valencia are being moved to market at a very slow pace, and those growers that have valencias on sour root are holding their crops with the hope that they will get better prices. More melanose is showing up on foliage than we have seen in a number of years, but there seems to be very little on the fruit. Money for the care of groves is scarce, but most growers will do everything possible to keep their properties in good shape.

SOUTHWEST FLORIDA—

Eaves Allison

Heavy winds and dry weather in March and early April caused some dropping in the new citrus crop, but general heavy rains in mid-April have tightened up the hold and provided enough moisture to insure the carrying of the bulk of the new crop. Vegetable crops in this territory have suffered some damage from wind and heavy rains, but if no more occur the growers will probably come out well after all by the end of the shipping season. The citrus price situation remains bad, but growers are beginning to place their orders for the summer application of fertilizer on a more or less normal basis, with some reduction in poundage and nitrogen content. Most are including the well proven secondaries in a maintenance amount. Celery and gladiolus prices have been low this season, with the latter picking up some at this time.

ADVERTISEMENT — LYONS FERTILIZER COMPANY



They was a time when nobody but the feller who had a lot of citrus trees full of fruit was the only guy who was interested in the citrus industry . . . specially when fruit was sellin' so low that they was no profit in it . . . just lately though Florida cattlemen has shown a heap of interest in the possibility of grapefruit for cattle feed, so on April 10 a group of citrus and cattle folks met at the Ona Range Citrus Experiment Station near Wauchula to hear Dr. W. G. Kirk, vice director of the Station, tell about the value of grapefruit as food for cattle.

Dr. Kirk confirmed all the reports which has been seepin' out here and there about the profit from usin' grapefruit as cattle feed . . . figures were presented by H. J. Fulford, an associate at the Station, which showed that \$5 worth of cottonseed meal plus 2541 pounds, or 30 field crates of grapefruit will produce 100 pounds of tender beef worth about \$25 on today's market. That would make the 30 crates of grapefruit worth \$20 when transformed into beef, or nearly 70 cents a box . . . it costs 25 cents a box to pick and haul the fruit so the tree value is 45 cents a box . . . a much better price than growers is gettin' today. Oranges don't go so well with the cattle as the acrid peel oil in the oranges doesn't appeal to the cattle.

Here's hopin' that before next shippin' season some program will be worked out that will insure the growers a profit above cost of production . . . the present chaotic condition should inspire every grower to help work out a program that will work to his advantage . . . certainly the time has arrived when the spirit of "let John do it" ain't goin' to put no money in our pockets . . . we've all got to face the facts that with continuing increases in production all of us growers has got to get together and cooperate with all other growers if we're goin' to make the industry profitable to us . . . bearin' in mind that agriculture is one of the most profitable industries in America, when its individual members work together.

As you know your old Uncle Bill is in the fertilizer business and he loves to sell fertilizer . . . and he also knows that when you use the mixtures recommended by his field men that you'll get results. We all know that conditions is mighty tight and we agree that it's necessary to economize wherever possible in order to cut production costs . . . but we wouldn't be either fair or loyal to our customers if we didn't tell 'em that trees can't get along without food . . . so we suggest that you confer with our field man in your territory . . . you'll find him anxious to work with you to effect every possible saving.

Uncle Bill

Internal Fruit Quality As Related To Production Practices...

It has been suggested that a practical paper covering the relationship between internal fruit quality and production practices would be appropriate at this time. An attempt has been made to keep the discussion simple and at the same time present in a general way what are considered good technical contributions by various research workers in the field. To try to discuss all of the factors which are reported by fact and fiction to influence citrus "maturity" and fruit quality would be a hopeless task in the time allotted. This represents only a humble attempt to try and correlate some of what we know, plus a few logical assumptions, with some of the practical concepts about citrus "maturity" and fruit quality.

It is to be regretted that our present maturity standards do not serve as a better criterion of taste and flavor of citrus juice. It has long been recognized that the ratio serves little more than a satisfactory index of sweetness and sourness. Work by Cowart (2) of the Citrus Experiment Station, shows that at any given degree of sweetness, total solids is the best criterion of flavor. A juice with low solids is weak and flat and lacking in character while high solids gives juice character and richness or "body." The results of this work indicate that both artificially adjusted juice and natural orange juice having less than 8.8 percent solids is not acceptable to taste and has very little flavor regardless of the variety of acid content. Oranges with soluble solids as low as 8.8 percent were of common occurrence in Florida before the present fertilizer and spray programs using supplemental elements became widely accepted. The results of this work showed in general that with acceptable acidity, juice was considered fairly good with solids ranging from 8.8 to 10.0 percent, and good when the solids went above the ten percent level. The finest quality of juice was obtained where solids ranged about 13.00 percent accompanied by proper acid balance. The last figure is essentially representative of the midseason and late

John W. Sites

Citrus Experiment Station, Lake Alfred, Florida, at meeting Florida State Horticultural Society

oranges now being generally produced within the State. Through the years it has become apparent that a careful analysis of fruit juices to determine their acid, sugar, soluble solids, vitamin C, juice content, etc. serves as a reasonably accurate index of fruit quality and further that such analyses can be used as a definite means of evaluating quality of fruits produced under varying conditions. The problem of determining the conditions which may effect changes in fruit quality becomes complex. There is a great deal of information about some of these conditions but in other cases data is insufficient or lacking entirely.

Weather Affects Fruit Quality

Many citrus growers have long recognized that weather conditions affect to a considerable extent the quality of the fruit which can be produced in any particular season. Fewer realize that weather conditions can cause differences in fruit quality as great or greater than can be induced by any cultural or nutritional treatment which has thus far been used in citrus culture in Florida. Judging from the records at the Citrus Station during the past seven years, we have had two high solids years during this period. These were the 1940-41 and 1942-43 seasons. The fruit produced during the 1940-41 season was somewhat better than the latter, and was the only season during the last seven years when seedless grapefruit on rough lemon rootstock reached 10.00 percent total soluble solids by the latter part of



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September and approached 12.50 by the time it had reached prime quality condition. During the period from 1940 to 1944 there were two low and two high solids years. It would appear that differences caused by weather conditions which affect fruit quality should show up during this four year period. Oddly enough, no one element of weather is sufficiently outstanding from the study made thus far to enable one to say that it was the cause of the changes which have been noted. It would appear that these changes must be caused by a combination of weather factors rather than any one element of weather in particular. The high solids years, during the months of June, July, August and September, are characterized by lower rainfall, a higher percentage of possible sunlight and a lower number of cloudy days. One of the high solids years (1940-41) had an early bloom; (approximately two to three weeks) the other did not. A check of the total available heat, according to the method suggested by Webber (14) failed to show any significant differences for the period in question. It is difficult to pick out elements of weather which affect fruit quality but the importance of these elements cannot be over-emphasized for much of the troubles we have been having with low solids Hamlin and Parson Brown oranges during the past few seasons is undoubtedly due to weather conditions. Increased knowledge of weather and how it affects physiological processes in citrus trees may in time permit predictions of some accuracy regarding the quality of fruit which may be expected under particular weather conditions.

There are a number of other factors affecting fruit quality concerning which information is more specific, and over which the grower can exercise much more control. The effect of root-stock has been investigated by Harding, Winston and Fisher (6) and by Harding and Fisher (7) and others. Only sour orange and rough lemon are commonly used as understocks in Florida at the present time to any extent. Under similar conditions, sour orange stock can be expected to produce fruit of better quality than rough lemon but the latter may mature fruit slightly earlier (5). The effect of arsenic or "maturity" and fruit quality is, of course, very important for grapefruit. This problem is at the pre-

sent time being investigated further by Mr. Reitz at the Citrus Station and will be reported on at a later date.

Fertilization as Related to Fruit Quality

Largely because of the critical situation which developed during the early thirties with regard to deficiencies, investigations undertaken to determine their effect on growth, production and fruit quality have been reported by a number of workers. Much has been done toward clarifying our knowledge of the effect of deficiencies of magnesium, zinc, and copper. The effect of these elements on the internal quality of citrus fruits has been reported by Cowart (3), Cowart and Stearns (4), Fudge and Fehmerling (5), Roy and Bahrt (9), Skinner, Bahrt and Hughes (11), Sites (10), and Stearns and Sites (12). The results of these experiments have shown consistently the improvement in fruit quality which results from the correction of deficiencies of magnesium, manganese, zinc and copper. A deficiency of magnesium results in very marked decreases in soluble solids, acidity

and vitamin C content, and it has been thoroughly demonstrated by plots at the Citrus Station that it is not possible to produce high quality fruit, maintain tree vigor or secure optimum production where a deficiency of magnesium exists. In view of the nature of some of the inquiries which have been received at the Citrus Station it is perhaps well to point out again certain facts with regard to the use of supplemental elements in the production of citrus so far as fruit quality is concerned.

A citrus tree by nature of its genetic constitution, its root-stock and its soil and climatic environment has certain limitations in the quality of fruit which it can produce regardless of the nutritional and cultural treatment which it may receive. Once deficiencies of the supplemental elements are corrected and the grove is on a good maintenance program there is no reason to believe that applications of these elements other than are needed for maintenance will improve internal fruit quality. There is no information to show that any benefits are derived from luxury con-

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sumption of these elements by citrus. Certainly there is no evidence from any of the nutritional plots at the Citrus Station that higher solids fruit can be produced from additional nutritional sprays or by increasing the percentage of these elements in the fertilizer mixture over and above those which are recommended for the maintenance of tree vigor. This is mentioned because of repeated inquiries as to the desirability of applying additional applications of magnesium, and the advisability of applying additional nutritional sprays in an effort to raise the solids of grapefruit and early orange varieties.

While discussing the effect of supplemental elements on fruit quality, particularly grapefruit, it is perhaps well to repeat that there is no indication that the use of these elements tends to delay or to hasten to any extent the time at which the fruit will meet the State maturity requirements. This was reported on earlier by Cowart (3) and by Sites (10) and the results of recent years analyses tend to verify these reports.

Source of Nitrogen as Related to Fruit Quality

Questions regarding the source of nitrogen are brought up frequently in connection with any consideration of citrus nutrition and fruit quality. There has been in operation at the Citrus Station since 1944 a nitrogen source experiment in which five different sources of nitrogen; nitrate of soda (NaNO_3), ammonium sulfate (NH_4SO_4), organic (castor pomace), urea (Uramon) and ammonium nitrate (NH_4NO_3) and combinations of these have been applied to Hamlin oranges. Except for one plot, a basic 4-6-8-4-1½ analysis is applied to the entire block with the source of the nitrogen for the various plots changed in the mixture for each treatment. The trees receive three applications per year at the rate of ten pounds per tree per application. Plots in this block are sampled continuously from September through December. To date no differences of any significance have been found to exist in the internal quality of the fruit produced from any of the treatments. These results are in keeping with those reported by Camp (1) for grapefruit, except that as yet no marked differences in external quality are apparent. It is certainly safe to assume, based on the results of this experiment thus far, that it is not reason-

Refrigerator Car Of The "Future" Has Arrived

In an exhaustive report to officers and members of the United Fresh Fruit & Vegetable Association, Chairman John N. Kelley of that organization's Refrigerator Car Committee paints an encouraging picture of present and future prospects for more and better protective railway rolling stock, an announcement by Executive Vice President C. W. Kitchen says.

Mr. Kelley, who is Superintendent of Fruit Transportation for the Fruit Dispatch Company, New York, the world's leading importers and distributors of bananas, has headed the United's drive for improved "refrigerers" during the past five years. In addition to his leadership in helping to solve the car problem, he is director of the parent association.

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able to expect any quick changes to occur in fruit quality as a result of changes in the source of nitrogen in the fertilizer as long as the ratio and the quantity is kept the same. Although inorganic nitrogen, as the only source of nitrogen, produces acceptable quality fruit so long as all the recognized needed elements are supplied, there is no indication that all inorganic nitrogen is superior to the mixtures of inorganic and organic now commonly used. In view of the unsatisfactory past history with regard to the use of all inorganic nitrogen in the fertilizer it would seem wise to at least continue to use mixtures containing at least as much organic nitrogen as is necessary to properly condition the fertilizer. Another point in favor of the use of some organic nitrogen is that it provides some safety against the development of deficiencies which are at present not recog-

nized but which it is reasonable to believe might develop from a completely inorganic program. Nitrate of soda shows a slight advantage over the other forms of inorganic nitrogen which were used.

(Continued Next Month)

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